# Communications in

# Mathematical Physics

### Volume 85 1982

Chief Editor

A. Jaffe, Cambridge, MA

**Editorial Board** 

H. Araki, Kyoto

J. Fröhlich, New York, NY

J. Glimm, New York, NY

R. Haag, Hamburg

S. Hawking, Cambridge, MA

O. Lanford, Berkeley, CA

J. L. Lebowitz, New Brunswick, NJ

J. Moser, Zürich

K. Osterwalder, Zürich

B. Simon, Pasadena, CA

Ya. G. Sinai, Moscow

T. Spencer, New York, NY

R. Stora, Geneva

S.-T. Yau, Princeton, NJ

**Advisory Board** 

M. F. Atiyah, Oxford

A. Connes, Bures-sur-Yvette

G. 't Hooft, Utrecht

I. Singer, Berkeley, CA

C. N. Yang, Stony Brook, NY



Springer-Verlag Berlin Heidelberg New York

#### Copyright

It is a fundamental condition that submitted manuscripts have not been published and will not be simultaneously submitted or published elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher if and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform or any other reproductions of similar nature, and translations. Photographic reproduction, microform, or any other reproduction of text, figures, or tables from this journal is prohibited without permission obtained from the publisher.

While the advice and information in this journal is believed to be true and accurate at the date of its going to press, neither the authors nor the editors nor the publisher can accept legal responsibility for errors or omissions that may have been made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Special Regulations for the USA

The Article Fee Code on the first page of an article in this journal indicates the copyright owner's consent that in the USA copies may be made for personal or internal use, provided the stated fee for copying beyond that permitted by Section 107 or 108 of the United States Copyright Law is paid through the Copyright Clearance Center, Inc., 21 Congress Street, Salem, MA 01970, USA

If a code does not appear, copies of the article may be made without charge, provided permission is obtained from the publisher.

The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for such copying.

Die in der Zeitschrift veröffentlichten Beiträge sind urheberrechtlich geschützt. Alle Rechte, insbesondere das der Übersetzung in fremde Sprachen, vorbehalten. Kein Teil dieser Zeitschrift darf ohne schriftliche Genehmigung des Verlages in irgendeiner Form – durch Fotokopie, Mikrofilm oder andere Verfahren – reproduziert oder in eine von Maschinen, insbesondere von Datenverarbeitungsanlagen verwendbare Sprache übertragen werden. Auch die Rechte der Wiedergabe durch Vortrag, Funk- und Fernsehsendung, im Magnettonverfahren oder ähnlichem Woge bleiben vorbehalten.

Fotokopien für den persönlichen und sonstigen eigenen Gebrauch dürfen nur von einzelnen Beiträgen oder Teilen daraus als Einzelkopien hergestellt werden. Jede im Bereich eines gewerblichen Unternehmens hergestellte und benutzte Kopie dient gewerblichen Zwecken gemäß §54 (2) UrhG und verpflichtet zur Gebührenzahlung an die VG WORT, Abteilung Wissenschaft, Goethestraße 49, D-8000 München 2, von der die einzelnen Zahlungsmodalitäten zu erfragen sind.

Springer-Verlag Berlin Heidolberg New York Printers: Brühlsche Universitätsdruckerei, Giessen

Printed in Germany - © Springer-Verlag GmbH & Co KG Berlin Heidelberg 1982

## Contents

Anshelevich, V.V., Khanin, K.M., Sinai, Ya. G.: Symmetric Random Walks in Random
Environments
Araki, H.: On a Pathology in Indefinite Metric Inner Product Space
Baal, P. van: Some Results for SU (N) Gauge-Fields on the Hypertorus
Balaban, T.: (Higgs)2.3 Quantum Fields in a Finite Volume. I. A Lower Bound 603
Bellissard, J., Scoppola, E.: The Density of States for Almost Periodic Schrödinger Operators and the Frequency Module: A Counter-Example
Brenig, W.: Correlation Functions for Quasi-Linear Response Theory
Bros, J., Iagolnitzer, D.: Unitary Equations and Structure of the S-Matrix at the m-Particle
Threshold in a Theory with Pure $m \rightarrow m$ Interaction
Buchholz, D.: The Physical State Space of Quantum Electrodynamics
Cammarota, C.: Decay of Correlations for Infinite Range Interactions in Unbounded Spin
Systems
Equations
Davis, E.B.: The Twisting Trick for Double Well Hamiltonians
Doplicher, S.: Local Aspects of Superselection Rules
Dunlop, F., see Combescure, M
Friedan, D.: A Proof of the Nielsen-Ninomiya Theorem
a Heat Bath: A One Dimensional Model
Henry, D.B., Perez, J.F., Wreszinski, W.F.: Stability Theory for Solitary-Wave Solutions of
Scalar Field Equations
Hugenholtz, N.M.: On the Inverse Problem in Statistical Mechanics
Iagolnitzer, D., see Bros, J
Jost, Res: Laudatio to the 60th Birthday of Rudolf Haag
Kadison, R.V.: Limits of States
Kastler, D.: On A. Connes' Noncommutative Integration Theory
Kastler, D., Takesaki, M.: Group Duality and the Kubo-Martin Schwinger Condition. II 155
Khanin, K.M., see Anshelevich, V.V., et al
Kirsch, W., Martinelli, F.: On the Spectrum of Schrödinger Operators with a Random Potential 329
Lebowitz, J.L., see Goldstein, S., et al
Lieb, E.H.: Analysis of the Thomas-Fermi-von Weizsäcker Equation for an Infinite Atom
Without Electron Repulsion
Lions, P.L., see Cazenave, T
Lüscher, M.: Topology of Lattice Gauge Fields
Martinelli, F., see Kirsch, W
Oehme, R., Zimmermann, W.: Analyticity of Effective Coupling and Propagators in Massless
Models of Quantum Field Theory
Parker, T.H.: Gauge Theories on Four Dimensional Riemannian Manifolds
Perez, J.F., see Henry, D.B., et al
Pulvirenti, M., see Dürr, D
Ravishankar, K., see Goldstein, S., et al
Roberts, J.E.: Localization in Algebraic Field Theory
Robinson, D.W.: Strongly Positive Semigroups and Faithful Invariant States 129

Ruelle, D.: The Obsessions of Time	3
Ruskai, M.B.: Absence of Discrete Spectrum in Highly Negative Ions. II. Extension to Fermions 32	5
Scheffer, V.: Boundary Regularity for the Navier-Stokes Equations in a Half-Space 27	5
Scoppola, E., see Bellissard, J	1
Sigal, I.M.: Geometric Methods in the Quantum Many-Body Problem. Nonexistence of Very	
Negative Ions	19
Sinai, Ya.G., see Anshelevich, V.V., et al	9
Takesaki, M., see Kastler, D	5
Tod, P., see Horowitz, G.T	
Wreszinski, W.F., see Henry, D.B., et al	1
Yafaev, D.R.: The Low Energy Scattering for Slowly Decreasing Potentials	17
Zimmermann, W., see Oehme, R	3

Indexed in Current Contents

